

Appl. No. 10/708,641
Amdt. dated November 10, 2005
Reply to Office action of August 24, 2005

REMARKS/ARGUMENTS

Claims 1, 15, and 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Hu et al U.S Patent No. 5,517,344. Claims 2-14 and 16-19 are rejected under 35 U.S.C. 5 103(a).

1. Rejection of claims 1, 15, and 20-21:

Referring to claim 1, Hu et al discloses a liquid crystal display panel comprising: a first substrate (13); a second substrate (14) having an active region; a sealant (19) 10 positioned on the second substrate and surrounding the active region for adhering the second substrate to the first substrate; a spacer wall (12) positioned on the second substrate and between the sealant and the active region, the spacer wall having at least one liquid crystal injected opening and at least one spacer block (15) positioned near the liquid crystal injected opening; and a liquid crystal layer (18) positioned between the first 15 substrate, the second substrate, and the sealant, [figs.6-7].

Claims 15, and 20-21 are met the discussion regarding claim 1 rejection above.

Response:

20 The Examiner points that Hu et al disclose the similar device structure to the present invention with two sealing bands 12 and 19. The description of sealing bands 12 and 19 are shown as follows: "the active drive circuitry 11 is integrally formed on the substrate 13 between the two sealing bands 12 and 19 and between upper and lower substrates 13 and 14. This provides a total seal for the circuitry 11 thus protecting it from the 25 environment." *This shows that the sealing bands 12 and 19 are applied for sealing.* Hu et al do not mention that the sealing bands 12 and 19 are made with different materials and never teach that the seal band 12 has a preferable property that does not contaminate liquid crystal molecules and prevent the sealing band 19 or other seal materials from

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contaminating liquid crystal molecules. Accordingly, the sealing band 12 is not the same as the spacer wall, which can prevent liquid crystal molecules from being contaminated by the sealant, defined in claim 1 of the present application.

5 As in the present application, the spacer wall is applied for isolating the sealant and the liquid crystal layer in order to prevent the sealant from contaminating the liquid crystal molecules (par. 0021). The materials of the spacer wall must be different from the materials of the sealant so as to prevent the contamination. Compare to the present invention, a person skilled in this art can recognize the sealing bands 12 and 19 in
10 U.S Patent No. 5,517,344 as the sealants, not the spacer walls of the present application. Thus, Hu et al does not disclose any spacer wall for isolating the sealant and the liquid crystal layer.

In addition, Hu et al disclose a well-known adhesive 15 such as UV glue after the
15 liquid crystal is inserted therein for blocking an opening (Fig.1, and col.3, lines 66-68). However, in the present application, spacer blocks are positioned near the openings for preventing the sealant from contaminating the liquid crystal molecules (par. 0024). Therefore, the spacer blocks do not block the opening and have different materials
20 from the adhesive 15 or seal bond 12 in U.S Patent No. 5,517,344. Thus, Hu et al do not disclose any spacer blocks. Accordingly, Hu et al never disclose all the limitations, such as the spacer wall or spacer block, in claim 1, thus claim 1 should be allowable.

Similarly, Hu et al do not disclose any spacer wall or any spacer blocks defined in claims 15 and 20-21, so claims 1, 15 and 20-21 are patentable in comparison with U.S
25 Patent No. 5,517,344. Reconsideration of claims 1, 15 and 20-21 is respectfully requested.

2. Rejection of claims 2-3, 6-7, 10-12 and 16-17:

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Claims 2-3, 6-7, 10-12 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatenable over Hu et al in view of Jung et al U.S Patent Application Publication No. 2005/0030468 for reasons of records, as cited in pages 3-4 in the above-identified Office action.

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Response:

Referring to claims 2-3, 6 and 15, since neither Hu et al nor Jung et al teach forming spacer walls or spacer blocks between the liquid crystal layer and the sealant that prevent contamination of the liquid crystal layer from the sealant, the combination of the references of Hu et al and Jung et al do not teach all the limitations of claims 2-3, 6, and 15. Therefore, in comparison with the combination of Hu et al and Jung et al, applicants believe claims 2-3, 6 and 15 should be allowable. As claims 7 and 10 are dependent upon claim 6 and claims 16-17 are dependent upon claim 15, they should be allowed if claim 6 and claim 15 are allowed. Reconsideration of claims 7, 10 and 16-17 is respectfully requested.

Claim 11 is amended for specifically defining the characteristic of the present application, wherein *the thin film layer overlaps a portion of the liquid crystal layer*. As show in Figs.8-9, the thin film layer, the anti-reflective layer 48, is positioned all over the peripheral region 34b and *only in a periphery portion of the active region 34a*, which means the thin film layer overlaps a portion of the liquid crystal layer 38. According to the present application, the anti-reflective layer 48 is positioned between the alignment layer 36b and the substrate 34 for absorbing light beams so that the peripheral region 34b and the peripheral portion of the active region 34a can be kept dark (par. 0026). In another embodiment shown in Figs.10-11, the thin film layer, the alignment layer 50a or 50b, is also positioned in the whole peripheral region 34b and only in a portion of the active

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region 34a and overlaps the peripheral portion of the liquid crystal layer 38.

The Examiner points that Jung et al discloses an anti-reflection film (not shown) for preventing a reaction between the sealant 90 and the liquid crystal material is formed on the sealant 90 (in par. 0040). However, Jung et al do not specifically disclose the position of the anti-reflection film and do not disclose how the anti-reflection film prevents the reaction or the liquid crystal molecules near the peripheral region from displaying images. Furthermore, Jung et al and Hu et al never teach forming a thin film layer or an anti-reflective layer only in a portion of the active region or overlapping a portion of the liquid crystal layer. Thus, claims 11-12 should be patentable in comparison with the cited applications. Reconsideration of claims 11-12 is therefore requested politely.

3. Rejections of claims 4-5, 8-9, 13-14 and 18-19:

Claims 4-5, 8-9, 13-14 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu et al in view of Jung et al, and further in view of Takako et al U.S Patent Application Publication No. 2003/0058264 for reasons of records, as cited in pages 4-5 in the above-identified Office action.

20 Response:

The reference of Takako et al never disclose a spacer wall or a spacer block positioned between the liquid crystal layer and the sealant in a liquid crystal display panel. Therefore, even the combination of the references of Hu et al, Jung et al, and Takako et al cannot obtain the structure defined in claims 1, 6, 11, and 15 of the present application. Accordingly, claims 1, 6, 11, and 15 should be allowable in comparison with the combination of all the cited references.

Claims 4-5 and 8-9 are dependent upon claims 1 and 6. Therefore, they should be

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allowable if claims 1 and 6 are allowable. Reconsideration of claims 4-5 and 8-9 is hereby requested.

Referring to claims 13-14, they disclose that the liquid crystal display panel 5 comprises one or two alignment layers 50a, 50b only in a portion of the active region 34a and in the peripheral region 34b for obstructing light to keep the peripheral region 34b and the peripheral portion of the active region 34a in dark, defined in claim 11, and therefore the liquid crystal molecules contaminated by the sealant will not be used for displaying images (Fig.11, par. 0028). However, none of the cited references 10 teach forming two alignment layers on the first and second substrate only overlap a portion of the liquid crystal layer and using the alignment layers to prevent the liquid crystal molecules near the peripheral region from displaying images. Therefore, claims 13-14 should be allowable in comparison with the cited references. Reconsideration of claims 13-14 is respectfully requested.

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As claims 18-19 are dependent upon claims 15 and 16, they should be allowed if claims 15-16 are allowed. Reconsideration of claims 18-19 is respectfully requested.

4.New claims introduction:

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In order to emphasize that the spacer wall can prevent the sealant from contaminating the liquid crystal molecules, claims 22-24, 26-27, 31-32, and 34 are added. Claims 22, 26, and 31 show that the spacer wall comprises inorganic materials or photoresist materials, such as silicon dioxide or silicon nitride. Claims 23 and 34 show 25 that the spacer block comprises inorganic materials or photoresist materials, such as silicon dioxide or silicon nitride. Claims 24, 27 and 32 show that the spacer wall separates the liquid crystal molecules from the sealant. Thus, the materials of the spacer wall and the spacer block are obviously different from the materials of the sealant so as to prevent

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the contamination.

In order to emphasize that the thin film layer functions to absorb, obstruct, or block light beams so that the peripheral region can be kept dark, claims 25, 28-29 and 33 are 5 added. Claim 30 is added for more specifically defining the portion of the thin film layer.

All of the newly added claims are fully supported by the specification of the present application, and applicant believes that the new claims are not disclosed in the cited references. Therefore, consideration of claims 22-34 is politely requested.

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Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Sincerely yours,

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Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C. is 13 hours behind the Taiwan time, i.e. 9 AM in D.C. = 10PM in Taiwan.)